

## METHOD OF IMPROVING THERMAL STABILITY FOR COBALT SALICIDE

### **ABSTRACT OF THE DISCLOSURE**

A method of improving thermal stability for cobalt salicide includes providing a substrate which has a silicon layer formed thereon. A cobalt layer is formed over the silicon layer, and  $\text{TiN}_x$  layer is formed over the cobalt layer. The  $\text{TiN}_x$  layer includes x atoms of nitrogen for each atom of titanium in a  $\text{TiN}_x$  molecule, and a value of x is greater than 0.9. A first thermal process is then performed to form a cobalt salicide layer over the silicon layer. Any non-reactive cobalt is removed, and a second thermal process is performed to enhance the conductivity of the cobalt salicide layer.